

butylphenyl group, a 2,6-dimethylphenyl group, a 3,5-dimethylphenyl group, a 2,4-dimethylphenyl group, a 1,2-dimethylphenyl group, etc., as an aryl group having from 6 to 20 carbon atoms, an alkylaryl group or an arylalkyl group; F, Cl, Br, I, as a halogen; and a pentamethylantimonyl group, a trimethylsilyl group, a trimethylgermyl group, a diphenylarsenyl group, a dicyclohexylantimonyl group, a diphenylboryl group, etc., as an organometalloid group. Specific examples of the substituted cyclopentadienyl group for R^{28} and R^{29} include a methylcyclopentadienyl group, a butylcyclopentadienyl group, a pentamethylcyclopentadienyl group, etc.

In the invention, concretely, the anion with plural groups bonded to a metal includes $B(C_6F_5)_4^-$, $B(C_6HF_4)_4^-$, $B(C_6H_2F_3)_4^-$, $B(C_6H_3F_2)_4^-$, $B(C_6H_4F)_4^-$, $B[C_6(CF_3)F_4]_4^-$, $B(C_6H_5)_4^-$, PF_6^- , $P(C_6F_5)_6^-$, $Al(C_6HF_4)_4^-$, etc. The cation includes, for example, Cp_2Fe^+ , $(MeCp)_2Fe^+$, $(tBuCp)_2Fe^+$, $(Me_2Cp)_2Fe^+$, $(Me_3Cp)_2Fe^+$, $(Me_4Cp)_2Fe^+$, $(Me_5Cp)_2Fe^+$, Ag^+ , Na^+ , Li^+ , etc. The other cations include, for example, those from nitrogen-containing compounds, such as pyridinium, 2,4-dinitro-N,N-diethylanilinium, diphenylammonium, p-nitroanilinium, 2,5-dichloroanilinium, p-nitro-N,N-dimethylanilinium, quinolinium, N,N-dimethylanilinium, N,N-diethylanilinium, etc.; those from carbenium compounds such as triphenylcarbenium, tri(4-methylphenyl)carbenium,

tri(4-methoxyphenyl)carbenium, etc.; alkylphosphonium ions such as CH_3PH_3^+ , $\text{C}_2\text{H}_5\text{PH}_3^+$, $\text{C}_3\text{H}_7\text{PH}_3^+$, $(\text{CH}_3)_2\text{PH}_2^+$, $(\text{C}_2\text{H}_5)_2\text{PH}_2^+$, $(\text{C}_3\text{H}_7)_2\text{PH}_2^+$, $(\text{CH}_3)_3\text{PH}^+$, $(\text{C}_2\text{H}_5)_3\text{PH}^+$, $(\text{C}_3\text{H}_7)_3\text{PH}^+$, $(\text{CF}_3)_3\text{PH}^+$, $(\text{CH}_3)_4\text{P}^+$, $(\text{C}_2\text{H}_5)_4\text{P}^+$, $(\text{C}_3\text{H}_7)_4\text{P}^+$, etc.; arylphosphonium ions such as $\text{C}_6\text{H}_5\text{PH}_3^+$, $(\text{C}_6\text{H}_5)_2\text{PH}_2^+$, $(\text{C}_6\text{H}_5)_3\text{PH}^+$, $(\text{C}_6\text{H}_5)_4\text{P}^+$, $(\text{C}_2\text{H}_5)_2(\text{C}_6\text{H}_5)\text{PH}^+$, $(\text{CH}_3)(\text{C}_6\text{H}_5)\text{PH}_2^+$, $(\text{CH}_3)_2(\text{C}_6\text{H}_5)\text{PH}^+$, $(\text{C}_2\text{H}_5)_2(\text{C}_6\text{H}_5)_2\text{P}^+$, etc.

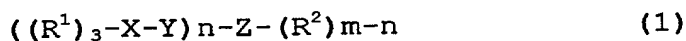
Of the compounds of formulae (10) and (11), concretely, the following are especially preferred. Preferred examples of the compounds of formula (10) include triethylammonium tetraphenylborate, tri(n-butyl)ammonium tetraphenylborate, trimethylammonium tetraphenylborate, triethylammonium tetrakis(pentafluorophenyl)borate, tri(n-butyl)ammonium tetrakis(pentafluorophenyl)borate, triethylammonium hexafluoroarsenate, pyridinium tetrakis(pentafluorophenyl)borate, pyrrolinium tetra(pentafluorophenyl)borate, N,N-dimethylanilinium tetrakis(pentafluorophenyl)borate, methyldiphenylammonium tetrakis(pentafluorophenyl)borate, etc. Preferred examples of the compounds of formula (11) include ferrocenium tetraphenylborate, dimethylferrocenium tetrakis(pentafluorophenyl)borate, ferrocenium tetrakis(pentafluorophenyl)borate, decamethylferrocenium tetrakis(pentafluorophenyl)borate, acetylferrocenium tetrakis(pentafluorophenyl)borate, formylferrocenium

tetrakis(pentafluorophenyl)borate, cyanoferrocenium
tetrakis(pentafluorophenyl)borate, silver tetraphenylborate,
silver tetrakis(pentafluorophenyl)borate, trityl
tetraphenylborate, trityl tetrakis(pentafluorophenyl)borate,
silver hexafluoroarsenate, silver hexafluoroantimonate,
silver tetrafluoroborate, etc.

The Lewis acid includes, for example, $B(C_6F_5)_3$,
 $B(C_6HF_4)_3$, $B(H_2F_3)_3$, $B(C_6H_3F_2)_3$, $B(C_6H_4F)_3$, $B(C_6H_5)_3$, BF_3 ,
 $B[C_6(CF_3)F_4]_3$, PF_5 , $P(C_6F_5)_5$, $Al(C_6HF_4)_3$, etc.

Component (C):

This is a compound of the following general formula (1):



wherein R^1 represents a hydrogen atom, a halogen atom, an aliphatic hydrocarbon group having from 1 to 30 carbon atoms, an aromatic hydrocarbon group having from 6 to 30 carbon atoms, an alkoxy group having from 1 to 30 carbon atoms, an aryloxy group having from 6 to 30 carbon atoms, a thioalkoxy group having from 1 to 30 carbon atoms, a thioaryloxy group having from 6 to 30 carbon atoms, an amino group, an amido group, or a carboxyl group, R^1 's may be the same or different, and R^1 's may be optionally bonded to each other to form a cyclic structure; X represents an element of Group 14; Y represents an element of Group 16; Z represents a metal element of Groups 2 to 13; R^2 represents a hydrocarbon group; m is an integer, indicating the valency of the metal element Z; and n is an